

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is requested. Claims 1-22 and 24-27 are in this application. Claims 1-3, 6-8, 11-15, 18-22, 24, and 27 have been amended. Claim 23 has been cancelled. In addition to the amendments discussed below, the claims have also been amended to alternately claim the present invention and correct inadvertent errors.

The Examiner objected to the drawings under 37 CFR §1.83(a) because the drawings do not show a second optical device that is associated with the network end point.

Applicant notes that claims 1, 6, and 21 recite a memory or memory means, which can be read to be, for example, applicant's FIG. 2 as memory 210. Claims 1, 6, and 21 also recite that the memory or memory means is to store a number of identifiers. For example, the first identifier of claim 1 can be read to be the active identity number AN1 shown in applicant's FIG. 2, while the second identifier of claim 1 can be read to be the standby identity number SN1 shown in applicant's FIG. 2.

In addition, applicant notes that 37 CFR §1.83(a) does not require that every limitation of a claim be illustrated in a drawing, but instead requires that the features or the positively recited elements of a claim be illustrated. In the present case, the identifiers represent different structures (e.g., the first and second optical devices), but these different structures are not positively recited elements of the claim. As a result, the structure that an identifier represents need not be illustrated in a drawing. Thus, applicant's FIG. 2 satisfies the requirements of 37 CFR §1.83(a).

The Examiner rejected claims 18 and 23-27 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner argued that there is no support in the originally-filed specification for the

limitation that the first optical device continues to receive network traffic until the second optical device responds to network traffic.

Claim 18 recites, in part,

“associating a second identifier with the end of the single network cable so that the first optical device continues to receive network traffic.”

Claim 24 recites, in part,

“associating a replacement network device with the end of the single cable when the functioning network device is to be serviced so that the functioning network device continues to receive network information.”

Applicant respectfully directs the Examiner to FIG. 3, and page 12, line 23 to page 13, line 9 of the originally-filed specification, where applicant discusses the elements required to upgrade an existing service, where a replacement optical network terminal (ONT) needs to be installed to upgrade the service. These elements include associating the standby identity number of the replacement ONT that has the upgraded services with a network end point. In addition, these elements include dispatching a network technician to the network end point, removing the current ONT from the network end point, and installing the replacement ONT to the network end point.

Applicant further directs the Examiner to page 16, lines 24-30 of the originally-filed specification which recites:

“To upgrade service with BPON 200, the identity number of the replacement ONT that provides the upgraded service is entered into memory 210 of OLT 110 as the standby identity number. Because memory 210 supports an active identity number and a standby identity number, the present invention allows the end user to continue to receive service until the moment the current ONT is physically disconnected from the network.”

Thus, from what can be determined, applicant's originally-filed specification satisfies the requirements of the first paragraph of section 112 with respect to claims 18 and 24-27. (As noted above, claim 23 has been cancelled.)

The Examiner rejected claims 1-17 and 21-23 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art in view of Nakaishi (U.S. Patent Publication No. 2002/0021472 A1). For the reasons set forth below, applicant respectfully traverses this rejection.

Claim 1 has been amended, and recites, in part,

"a memory to store a first identifier and a second identifier, the first identifier representing a first optical device that is connected to an end of a single network cable, the second identifier representing a second optical device that is to be connected to the end of the single network cable after the first optical device has been removed from the end of the single network cable."

Applicant assumes that the Examiner would read memory 120A shown in applicant's admitted prior art FIG. 1 to be the memory required by claim 1. Applicant also assumes that the Examiner would read the active identity number which can be stored in, for example, the first row and second column of table 134 of memory 120A shown in applicant's prior art FIG. 1 to be the first identifier required by claim 1.

However, with respect to the second identifier, applicant can find nothing in applicant's admitted prior art that teaches or suggests that table 134 of memory 120A additionally store a second identifier that represents a second optical device that is to be connected to the end of a single network cable after the first optical device has been removed from the end of the single network cable as required by claim 1.

Further, applicant can find nothing in Nakaishi that suggests that table 134 of memory 120A additionally store a second identifier as required by claim 1. FIG. 4 of

Nakaishi teaches an optical network that includes a series of ONUs (ONU#1-ONU#N), and an OLT 100 that is connected to the ONUs (ONU#1-ONU#N) via a series of optical couplers 103/104. FIG. 13 of Nakaishi alternately teaches that the ONUs (ONU#1-ONU#N) can be connected to OLT 100 via a series of optical switches 106/107 and an optical coupler 108.

Each of the ONUs (ONU#1-ONU#N), in turn, includes a primary PON circuit 110/120, a backup PON circuit 111/121, and a selector 112/122. (See also paragraphs 0045-0047 of Nakaishi.) In operation, Nakaishi teaches that if a primary PON circuit fails, the network traffic is directed to the backup PON circuit that is associated with the primary PON circuit.

However, as shown in FIGS. 4 and 13, Nakaishi also teaches that only one PON circuit is connected to the ONU end of each network cable. For example, as shown in FIG. 4 of Nakaishi, only primary PON circuit 110 is connected to the ONU end of the network cable that extends from optical coupler 104 to ONU#1. Similarly, only backup PON circuit 111 is connected to the ONU end of the network cable that extends from optical coupler 103 to ONU#1. Thus, Nakaishi teaches that only one PON circuit is connected to the ONU end of a single network cable.

As a result, even if it is assumed only for the sake of argument that OLT 100 has a memory that stores a first identifier that identifies primary PON circuit 110 as the PON circuit that is connected to the ONU end of a single network cable that extends from optical coupler 104, there is nothing in Nakaishi that teaches or suggests that the assumed memory of OLT 100 also stores a second identifier that identifies backup PON circuit 111 as a device that is to be connected to the ONU end of the single network cable that extends from optical coupler 104 after primary PON circuit 110 has been removed from the ONU end of the single network cable.

Thus, an identifier that represents backup PON circuit 111 can not be read to be the second identifier required by claim 1 because backup PON circuit 111 is never connected to the ONU end of the single network cable that extends from optical

coupler 104 after primary PON circuit 110 has been removed from the ONU end of the single network cable.

Therefore, even if one skilled in the art were motivated to incorporate the teachings of Nakaishi into applicant's admitted prior art to provide uninterrupted communication services to an end user, one would follow the teachings of Nakaishi and use a primary optical device with a primary network cable, and a backup optical device with a separate backup network cable.

As a result, even if applicant's admitted prior art were modified to include the teachings of Nakaishi, the modified system would still fail to teach or suggest that memory 120A of applicant's admitted prior art additionally store a second identifier as required by claim 1 because the backup optical device is never connected to the end of the same network cable used by the primary optical device after the primary optical device has been removed.

Therefore, since applicant's admitted prior art and the Nakaishi reference, taken alone or in combination, do not teach or suggest a memory to store a second identifier that represents a second optical device that is connectable to the end of the single network cable, claim 1 is patentable over applicant's admitted prior art in view of Nakaishi. In addition, since claims 2-5 depend either directly or indirectly from claim 1, claims 2-5 are patentable over applicant's admitted prior art in view of Nakaishi for the same reasons as claim 1.

Claim 6 recites, in part,

"memory means for storing a first identifier and a second identifier, the first identifier representing a first optical device that is connected to an end of a single network cable, the second identifier representing a second optical device that is to be connected to the end of the single network cable after the first optical device has been removed from the end of the single network cable."

However, as noted above, applicant's admitted prior art and the Nakaishi reference, taken alone or in combination, do not teach or suggest a memory to store a second identifier that represents a second optical device that is connectable to the end of the single network cable. As a result, claim 6 is patentable over applicant's admitted prior art in view of Nakaishi. In addition, since claims 7-10 depend either directly or indirectly from claim 6, claims 7-10 are patentable over applicant's admitted prior art in view of Nakaishi for the same reasons as claim 6.

Claim 11 recites, in part,

"periodically sending a first message to an end of a single cable to be received by a first optical device, the first message including a first identifier;

"determining whether the first optical device has failed to respond to the first message a predetermined number of times; and

"sending a second message to the end of the single cable to be received by a second optical device when the first optical device fails to respond the predetermined number of times, the second message having a second identifier that represents the second optical device, only one optical device being connected to the end of the single cable at a time."

In rejecting the claims, the Examiner pointed to applicant's admitted prior art as teaching periodically sending out an identification number message that includes the active identity number of a to-be-added optical network terminal (ONT) to determine if the to-be-added ONT has come on line. Based on this teaching, the Examiner argued that it would be obvious to perform the elements of claim 11 in order to bring the optical device on line.

Applicant notes that applicant's admitted prior art teaches that to add a new ONT, the active identity number of the new ONT is entered into a memory, such as into the second column of table 134 of memory 120A shown in applicant's prior art FIG. 1. A message that includes the active identity number of the new ONT is then periodically output to determine when the new ONT has come on line.



However, since the ONT is new, no message need be sent to the end of the network cable because there is no ONT connected to the end of the network cable that can respond to the message. Since there is no ONT connected to the end of the network cable that can respond to a message, one skilled in the art would not be motivated to send a message to a non-existent ONT to determine if the non-existent ONT can respond to the message.

Applicant further notes that applicant's admitted prior art teaches that to replace an existing ONT to upgrade service or replace a partially failed ONT, the identification number of a replacement ONT is entered into a memory, such as table 134 of memory 120A shown in applicant's prior art FIG. 1, in place of the identification number of the existing ONT.

When the identification number of the replacement ONT is entered into memory, the existing ONT can no longer receive network traffic. As a result, one skilled in the art would not be motivated to send a message to the existing ONT to determine if the existing ONT can respond to the message because it is already known that the existing ONT can no longer receive network traffic.

Thus, since one skilled in the art would not be motivated to send a message to a non-existent ONT, or an ONT which is already known to be unable to receive the message, claim 11 is patentable over applicant's admitted prior art in view of Nakaishi. In addition, since claims 12-17 depend either directly or indirectly from claim 11, claims 12-17 are patentable over applicant's admitted prior art in view of Nakaishi for the same reasons as claim 11.

Claim 21 recites, in part,

"a memory to store a first identifier that represents an end of a single network cable, a second identifier that represents a first network device that is connected to the end of the single network cable, and a third identifier that represents a second network device that is connectable to the end of the single network cable, the second and third identifiers being associated with the end of the single network cable."

As noted above, applicant's admitted prior art and the Nakaishi reference, taken alone or in combination, do not teach or suggest a memory to store an identifier that represents a second optical device that is connectable to the end of the single network cable. As a result, claim 21 is patentable over applicant's admitted prior art in view of Nakaishi. In addition, since claim 22 depends either directly or indirectly from claim 21, claim 22 is patentable over applicant's admitted prior art in view of Nakaishi for the same reasons as claim 21. (As noted above, claim 23 has been cancelled.)

The Examiner rejected claims 18-20 and 24 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art in view of Nakaishi and further in view of Daudelin et al. (U.S. Patent No. 6,591,389 B1). For the reasons set forth below, applicant respectfully traverses this rejection.

Claim 18 recites:

"A method of servicing a network, the network having a first optical device connected to an end of a single network cable to receive network traffic, the first optical device having a first identifier, the method comprising:  
"associating a second identifier with the end of the single network cable so that the first optical device continues to receive network traffic; and  
"dispatching a technician to the end of the single network cable to service the first optical device, the first optical device continuing to receive network traffic until the first optical device is disconnected from the network by the technician."

Applicant can find nothing in applicant's admitted prior art that teaches or suggests "associating a second identifier with the end of the single network cable so that the first optical device continues to receive network traffic" as required by claim 21. Further, applicant can find nothing in Nakaishi that suggests the "associating" limitation.



As noted above, an identifier that identifies backup PON circuit 111 shown in FIGS. 4 and 13 of Nakaishi can not be read to be the second identifier required by claim 18 because there is nothing in Nakaishi that teaches or suggests associating backup PON circuit 111 with the ONU end of the same network cable that is connected to primary PON circuit 110. As further noted above, backup PON circuit 111 is never connected to the ONU end of the single network cable that is connected to primary PON circuit 110.

Therefore, since applicant's admitted prior art and the Nakaishi reference, taken alone or in combination, do not teach or suggest associating a second identifier with the end of the single network cable so that the first optical device continues to receive network traffic, claim 18 is patentable over applicant's admitted prior art in view of Nakaishi. In addition, since claims 19-20 depend either directly or indirectly from claim 18, claims 19-20 are patentable over applicant's admitted prior art in view of Nakaishi for the same reasons as claim 18.

Claim 24 recites, in part,

"A method of servicing a network having an end of a single cable and a functioning network device connected to the end of the single cable, the method comprising:

"associating a replacement network device with the end of the single cable when the functioning network device is to be serviced so that the functioning network device continues to receive network information;

"detecting when the functioning network device no longer receives the network information; and

"sending the network information to the replacement network device when the functioning network device no longer receives the network information."

As noted above, applicant's admitted prior art and the Nakaishi reference, taken alone or in combination, do not teach or suggest associating a second identifier with the end of the single network cable so that the first optical device continues to receive network traffic. As a result, applicant's admitted prior art in

view of the Nakaishi reference can not teach or suggest associating a replacement network device with the end of the single cable so that the functioning network device continues to receive network information.

Further, from what can be determined, there is no association that takes place between primary PON circuit 110 and backup PON circuit 111 when primary PON circuit 110 is to be serviced. As a result, claim 24 is patentable over applicant's admitted prior art in view of the Nakaishi reference.

The Examiner rejected claim 25 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art in view of Nakaishi and Daudelin et al. and further in view of Qin et al. (U.S. Patent No. 6,646,777 B2). In rejecting the claims, the Examiner appears to argue that applicant's admitted prior art in view of Nakaishi and Daudelin et al. teach all of the limitations of claim 25 except for teaching that the functioning network device is fully functioning.

However, as indicated above, claim 24 is patentable over applicant's admitted prior art in view of Nakaishi and Daudelin. As a result, since claim 25 depends from claim 24, claim 25 is patentable over applicant's admitted prior art in view of Nakaishi and Daudelin et al. and further in view of Qin et al. for the same reasons that claim 24 is patentable over applicant's admitted prior art in view of Nakaishi and Daudelin.

The Examiner rejected claims 26-27 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art in view of Nakaishi and Daudelin et al. and further in view of Neeley et al. (U.S. Patent Publication No. 2003/0012485 A1). In rejecting the claims, the Examiner appears to argue that applicant's admitted prior art in view of Nakaishi and Daudelin et al. teach all of the limitations of claim 24.

However, as indicated above, claim 24 is patentable over applicant's admitted prior art in view of Nakaishi and Daudelin. As a result, since claims 26-27 depend from claim 24, claims 26-27 are patentable over applicant's admitted prior art in

view of Nakaishi and Daudelin et al. and further in view of Neeley et al. for the same reasons that claim 24 is patentable over applicant's admitted prior art in view of Nakaishi and Daudelin.

Thus, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

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